

(PCT Article 36 and Rule 70)

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2005/004790

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1, 2, 4-12 as originally filed/furnished
- pages\* 3 received by this Authority on 25.10.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-10 received by this Authority on 25.10.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets fig. 1-4 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 11-13
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>5, 6, 8</u>	YES
		Claims <u>1-4, 7, 9, 10</u>	NO
	Inventive step (IS)	Claims _____	YES
		Claims <u>1-10</u>	NO
	Industrial applicability (IA)	Claims <u>1-10</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p>Document 1: JP 01-111320 A (Matsushita Electric Industrial Co., Ltd.), 28 April 1989, entire text and fig. 1 to 4 (Family: none)</p> <p>Document 2: JP 2003-068666 A (Tokyo Electron Ltd.), 07 March 2003, entire text and fig. 1 to 4 &amp; WO 2003/019636 A1 &amp; US 2004/0241968 A1 &amp; KR 2004029129 A &amp; AU 2002338013 A1 &amp; TW 559909 A</p> <p>Document 3: JP 60-138973 A (Kabushiki Kaisha Fuji Denki Sogo Kenkyusho), 23 July 1985, entire text and fig. 1 and 2 (Family: none)</p> <p>Document 4: JP 2000-208527 A (Fuji Electric Co., Ltd.), 28 July 2000, entire text and fig. 1 to 18 &amp; US 2003/0207536 A1 &amp; DE 10000754 A1</p> <p>Claims 1 to 4, 7, 9 and 10</p> <p>The inventions set forth in claims 1 to 4, 7, 9 and 10 lack novelty and do not involve an inventive step in the light of document 1, which is newly cited in the present international preliminary report on patentability.</p> <p>Document 1 (page 2, upper left column, line 16 to lower left column, line 1 and fig. 1 to 4) teaches a</p>		

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feature wherein boron is ion-implanted in the surface of a semiconductor substrate, and then helium plasma is irradiated upon the substrate in order to impart a desired impurity profile in which the impurity concentration is one part per ten or higher at a depth of 4 nm from the surface, while the impurity concentration is one part per hundred or higher at a depth of 7 nm from the surface.

## Claim 5

The invention set forth in claim 5 does not involve an inventive step in the light of documents 1 and 2, which are newly cited in the present international preliminary report on patentability.

Document 2 (paragraphs [0009] to [0013]) teaches a feature wherein plasma that includes hydrogen is irradiated upon the substrate after the introduction of impurities.

Such being the case, it would have been easy for a person skilled in the art to substitute a plasma that includes hydrogen for the plasma that is irradiated upon the substrate after the introduction of impurities in the invention taught in document 1.

## Claims 6 and 8

The inventions set forth in claims 6 and 8 do not involve an inventive step in the light of documents 1 to 4, which are newly cited in the present international preliminary report on patentability.

Document 3 (page 2, lower right column, lines 6 to 16) teaches a feature wherein impurities are introduced into the surface of a semiconductor substrate by means of

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a plasma doping technique.

Meanwhile, document 4 (paragraph [0073]) teaches a feature wherein impurities are introduced into the surface of a semiconductor substrate by means of a gas doping technique.

Such being the case, it would have been easy for a person skilled in the art to conceive of configuring the invention taught in document 1 so that the impurities are introduced by means of a plasma doping technique or a gas doping technique, as is taught in document 3 or document 4.